

The Creation and Detection of Deepfakes

Year: 2020 | Citations: 681 | Authors: Yisroel Mirsky, Wenke Lee

Abstract

Generative deep learning algorithms have progressed to a point where it is difficult to tell the difference between what is real and what is fake. In 2018, it was discovered how easy it is to use this technology for unethical and malicious applications, such as the spread of misinformation, impersonation of political leaders, and the defamation of innocent individuals. Since then, these “deepfakes” have advanced significantly. In this article, we explore the creation and detection of deepfakes and provide an in-depth view as to how these architectures work. The purpose of this survey is to provide the reader with a deeper understanding of (1) how deepfakes are created and detected, (2) the current trends and advancements in this domain, (3) the shortcomings of the current defense solutions, and (4) the areas that require further research and attention.